

Anatomy  
**PRACTICAL  
GUIDE BOOK**  
for  
**GENERAL AND MUSCULOSKELETAL  
MODULES**

*Haszianaliza Haslan  
Choy Ker Woon  
Muhammad Fairuz Azmi  
Nurul Hannim Zaidun  
Nurul Raudzah Adib Ridzuan  
Syed Baharom Syed Ahmad Fuad*

© UiTM Press, UiTM 2023

All rights reserved. No part of this publication may be reproduced, copied, stored in any retrieval system or transmitted in any form or by any means; electronic, mechanical, photocopying, recording or otherwise; without prior permission in writing from the Director of UiTM Press, Universiti Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan, Malaysia. E-mail: [penerbit@uitm.edu.my](mailto:penerbit@uitm.edu.my)

UiTM Press is a member of  
**MALAYSIAN SCHOLARLY PUBLISHING COUNCIL**



Cataloguing-in-Publication Data

Perpustakaan Negara Malaysia

A catalogue record for this book is available  
from the National Library of Malaysia

ISBN 978-967-363-876-5

Cover Design: Mohd Fadhel Mohd Drus

Typesetting: Mohd Fadhel Mohd Drus

Printed in Malaysia by : UiTM Printing Centre  
College of Creative Arts Studies  
Universiti Teknologi MARA  
40450 Shah Alam  
Selangor

# CONTENTS

<i>Preface</i>	ix
<b>General Module</b>	<b>1</b>
<b>Practical Histology 2: Epithelium and Glands</b>	<b>1</b>
■ Slide 1: Simple Squamous Epithelium - Mesothelium (Silver Impregnation)	2
■ Slide 2: Simple Cuboidal Epithelium – Kidney (H&E Staining)	3
■ Slide 3: Simple Columnar Epithelium - Jejunum (H&E Staining)	3
■ Slide 4: Pseudostratified Columnar Epithelium – Trachea (H&E Staining)	4
■ Slide 5: Transitional Epithelium – Urinary Bladder (H&E Staining)	4
■ Slide 6: Stratified Squamous Non-Keratinised Epithelium – Oesophagus (H&E Staining)	5
■ Slide 7: Stratified Squamous Keratinised Epithelium – Thick Skin (H&E Staining)	5
■ Slide 8: Merocrine Gland – Parotid Gland (H&E Staining)	6
■ Slide 9: Apocrine Gland– Lactating Breast (H&E Staining)	6
■ Slide 10: Holocrine Gland – Sebaceous Gland (H&E Staining)	7
<b>Practical Histology 3: Skin and Connective Tissues</b>	<b>8</b>
■ Slide 1: Mucoïd (Mucous) Connective Tissue (H&E Staining)	8
■ Slide 2: Dense Regular Connective Tissue (H&E Staining)	9
■ Slide 3: Adipose Tissue (H&E Staining)	10
■ Slide 4: Thin Skin (H&E Staining)	11
■ Slide 5: Thick Skin (H&E Staining)	12
■ Slide 6: Nail (H&E Staining)	13

# PREFACE

This practical guide is primarily intended for undergraduate and postgraduate students in medical, dental and health sciences. It also is beneficial to educators, instructors and clinicians.

Learning anatomy requires both lectures as well as laboratory sessions, to ensure students gain the fundamental knowledge needed for safe clinical practice. This practical guide was designed to be used as the main resource to facilitate students during their laboratory sessions. It also can be used as a complementary for any anatomy textbooks and atlases.

This practical guide includes two main modules in anatomy subjects.

**General module** provides a guideline on learning the histology of basic human tissue.

Features:

- List of histology slides in each practical session
- Specific learning outcomes for each slide
- Histological features in low and high magnifications serve as guide
- Spaces were provided for additional learning points in order to motivate self-learning in students

**Musculoskeletal module** provides a guideline on learning gross anatomy of musculoskeletal system including the bones, muscles, joints and their neurovascular supply.

Features:

- List of stations in each practical session
- Specific learning outcomes for each station
- Key points provide concise description serve as guide
- Spaces were provided for additional learning points in order to motivate self-learning in students

# GENERAL MODULE

General module provides fundamental knowledge on the normal structure and organization of the human body. Understanding this basic knowledge is vital in order to grasp comprehensive understanding of how the human body works and diseases that arise following various insults.

The cell is a basic functional unit that is organized into four basic types of tissue, namely the epithelial, connective, muscle and nervous tissue. A collection of these tissues in various morphology and proportion formed an organ, for example the heart and stomach.

**Epithelial tissue** is the tissue covers and lines interface surface and body cavities. It regulates exchange of molecules involves in absorption and secretion. It is characterized by:

- Composed of closely aggregated polyhedral cells.
- Exhibit functional and morphological polarity.
- Basal surface attached to the basement membrane.
- Have strong adhesion to each other.

Epithelium can be classified into surface epithelia and glands, in which there are epithelium that mainly involves in secretion.

**Connective tissue** composed of cells and extracellular matrix. The extracellular matrix is its major component formed by the ground substance and fibres, namely collagen and elastin. Connective tissue connects different types of tissue in the organ and provides volume and mechanical strength. Connective tissue can be classified into:

- Embryonic connective tissue: Mesenchyme, mucous connective tissue.
- Connective tissue proper: Loose, dense irregular and dense irregular.
- Specialized connective tissue: Reticular tissue, adipose tissue, bone, cartilage and blood.

Bone composed of cells and calcified extracellular material that provides a strong endoskeleton, protects vital organs and harbors cavities for blood formation. It can be divided into compact, composed of mainly the Haversian canals and cancellous, formed a fine network